<center>**REMARKS**</center>

Favorable consideration and allowance of the claims of the present application are respectfully requested.

Currently, Claims 2, 5-11, 13, 16-21 and 23-25 are pending. The dependency of Claims 10 and 20 have been changed as per the Examiner's consideration indicated.

In the present Official Action, now Final, the Examiner first rejected Claim 25 as being directed to non-statutory subject matter. In response, Claim 25 is being canceled herein without prejudice and the 35 U.S.C. 101 rejection of Claim 25 is moot.

Claims 2, 5-11, 13, 16-21 and 23-25 were further rejected under 35 U.S.C. §102(e) as allegedly anticipated by Boice et al. (US 5,978,029) (hereinafter "Boice").

With respect to the rejection of at least independent Claims 23-24 under 35 U.S.C. §102(b), applicants respectfully disagree in view of the amendments provided herein.

In response, with respect to Claim 23, applicants hereby cancel each of Claims 5 and 7 and incorporate in the subject matter thereof in amended independent Claim 23. Particularly, amended Claim 23 now sets forth a method for real-time multi-pass encoding of a sequence of video frames comprising the steps of:

calculating a look ahead window for determining a size of an input buffer and correlating said buffer size to a processing delay;

simultaneously feeding, in real-time, a sequence of incoming video frames to said input buffer and a first encoder device;

continuously collecting information from said first encoder device, in real-time, on the statistics and rate-quality characteristics of said sequence of incoming video frames;

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jointly determining, by a processing device, an optimal target bit allocation scheme for all frames in said look ahead window as a function of a calculated dynamic weighted picture complexity based on the information collected from said first encoder device and an available bit budget for all frames in the look ahead window;

encoding, by a second encoder device, each current incoming frame using the target bit allocation for said current incoming frame; and

continuously updating the said look ahead window by removing the current frame encoded by said second encoder device with a next frame from said sequence and repeating above look ahead window calculating through said second encoder device encoding steps.

wherein said input buffer implements [[a]] said correlated processing time delay of sufficient time such that sufficient information may be collected from said s first encoder device for deriving said jointly determined optimal target bit allocation by said processing device.

The limitation of canceled Claim 7 now in claim Claim 23 has been further amended to set forth that an optimal target bit allocation scheme is jointly determined for all frames in the look ahead window as a function of a calculated dynamic weighted picture complexity based on the information collected from the first encoder device and an available bit budget for all frames in the look ahead window

In this manner, available bits for all frames in the look ahead window may be used efficiently.

Respectfully, no new matter is being introduced in this amendment to Claim 23, in fact full support is found in the originally filed specification from ¶[0016] to ¶[0023] where the equation set forth in ¶[0023] indicates the target number of bits "T" as a function of the

dynamic weighted picture complexity "C". Note that Claims 6, 8 and 10 are being further amended in view of the amendments made to Claim 23 and in view of the canceled claims.

Respectfully, Boice does not teach or suggest the use or calculation of the dynamic weighted picture complexity "C". Moreover, Boice does not teach anything about the look ahead window and the jointly determining the target bit allocation for all the frames in the look ahead window implemented by the input buffer.

While Boice is directed to a real-time video frame encoding scheme, Boice, in the cited passages indicated by the Examiner in the rejection of Claim 7 from which this limitation is found (i.e., col. 12, lines 27-38 of Boice) does not provide such a teaching. While this cited passage in Boice mentions providing a measure of picture "quality" there is no mention of the steps of <u>jointly determining, by a processing device, an optimal target bit allocation scheme for all frames in said look ahead window as a function of a calculated dynamic weighted picture complexity based on the information collected from said first encoder device and an available bit budget for all frames in the look ahead window</u> as now claimed in amended Claim 23.

Moreover, it is emphasized that while Boice has indicated that "picture complexity" is an intra-frame statistic that can be used to generate an encoding parameter (See Boice at col. 12, lines 8-12), there appears no indication in Boice as to how that is performed, nor is there any teaching or suggestion of method steps of <u>jointly determining an optimal target bit allocation scheme for all frames in said look ahead window as a function of a calculated dynamic weighted picture complexity</u> as set forth in ¶[0023] of the present specification that indicates the target number of bits "T" as a function of the dynamic weighted picture complexity "C".

Moreover, the fact that the present invention, as now set forth in amended Claim 23, sets forth <u>jointly determining a target bit allocation scheme for all frames in the look ahead window</u>, is neither taught nor suggested by Boice, "joint determining" in the context of the present invention, means that the present method allocates bits for all frames in the <u>look ahead window</u> for splitting the allocated bits thereof among the frames in the <u>look ahead window</u>, i.e., <u>an available bit budget for all frames in the look ahead window</u>. This is contrary to the teachings of Boice where they indicate allocating bits for each frame independently. Thus, the present invention does not allocate bits for each frame, as Boice teaches but rather for the current frames in the <u>look ahead window</u>.

In light of these differences, it is respectfully submitted that Claim 23, as amended, is now patentably distinct from Boice.

Further, applicants have made similar amendments to independent Claim 24 and submit the remarks made hereinabove in support of its patentability.

That is, with respect to Claim 24, applicants hereby cancel each of Claims 16 and 18 and incorporate in the subject matter thereof in amended independent Claim 24. Particularly, amended Claim 24 now sets forth a system for real-time multi-pass encoding of a sequence of video frames aligned with the functionality as set forth in amended Claim 23. Claims 17, 19 and 20 are being further amended to conform with the changes made to Claim 24 and in view of canceled claims.

Thus, respectfully, the Examiner is respectfully requested to enter and consider the new Claims 23-24, and, in light of the distinctions described in the above remarks, to allow these claims to proceed to issuance, which action is respectfully solicited.

In view of the foregoing, this application is now believed to be in condition for allowance, and a Notice of Allowance is respectfully requested. If the Examiner believes a

telephone conference might expedite prosecution of this case, it is respectfully requested that

he call applicant's attorney at (516) 742-4343.

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Respectfully submitted,

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